

Amendments To The Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application.

Listing of the Claims:

Claim 1 (Currently Amended): A process for the preparation of a chiral compound of formula:



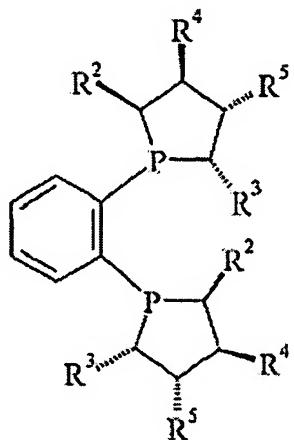
wherein X represents S or O, and R represents hydrogen, C₁₋₆-alkyl, C₃₋₈-cycloalkyl, aryl or aralkyl, each aryl or aralkyl being optionally further substituted with one or more C₁₋₄-alkyl groups and/or halogen atoms,

the which process comprises the asymmetric hydrogenation of a compound of formula:



wherein X and R are as defined above,
in the presence of a transition metal complex of a chiral bidentate phosphine ligand, that is stabilizing, and, optionally, a base.

Claim 2 (Previously Presented): The process of claim 1 wherein the chiral bidentate phosphine ligand is a compound of formula:

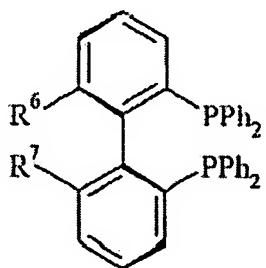


III,

and enantiomers

wherein R² and R³ are methyl, ethyl or isopropyl, and wherein R⁴ and R⁵ are hydrogen or R⁴ and R⁵ together form an isopropylidenedioxy group.

Claim 3 (Previously Presented): The process of claim 1, wherein the chiral bidentate phosphine ligand is a compound of formula:

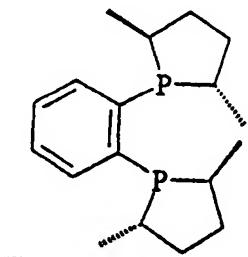


IV,

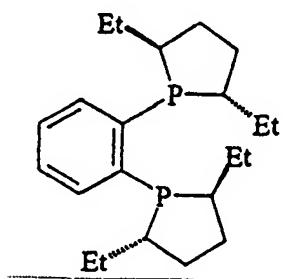
and enantiomers

wherein R⁶ and R⁷ are methoxy or ethoxy or wherein R⁶ and R⁷ together form a 1,3-propylidenedioxy or a 1,4-butylidenedioxy group.

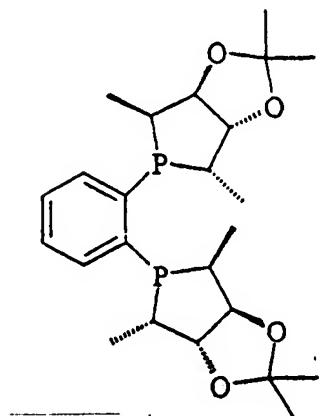
Claim 4 (Previously Presented): The process of claim 1, wherein the chiral bidentate phosphine ligand is selected from the group consisting of (S,S)-Me-DuPhos of formula:



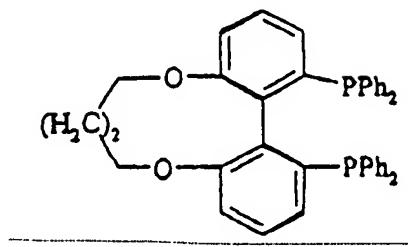
(S,S)-Et-DuPhos of formula:



(S,S,S,S)-Me-KetalPhos of formula:



and (S)-C4-TunaPhos of formula:



Claim 5 (Previously Presented): The process of claim 4, wherein the transition metal is Ru or Rh.

Claim 6 (Previously Presented): The process of claim 5, wherein the transition metal complex of the chiral bidentate phosphine ligand comprises at least one further stabilizing ligand that is selected from the group consisting of alkene and arene.

Claim 7 (Previously Presented): The process of claim 6, wherein the transition metal complex of the chiral bidentate phosphine ligand comprises at least one further stabilizing ligand that is selected from the group consisting of 1,5-cyclooctadiene and p-cymene.

Claim 8 (Previously Presented): The process of claim 7, wherein the counterion of the transition metal complex of the chiral bidentate phosphine ligand is selected from the group consisting of Cl⁻, BF₄⁻, AsF₆⁻, SbF₆⁻ and triflate.

Claim 9 (Previously Presented): The process of claim 8, wherein the catalyst is prepared by mixing a transition metal complex of the formula [Rh(cod)₂]⁺BF₄⁻ with a chiral bidentate phosphine selected from the group consisting of (S,S)-Me-DuPhos, (S,S)-Et-DuPhos and (S,S,S,S)-Me-KetalPhos.

Claim 10 (Previously Presented): The process of claim 9, wherein the base is a hydroxide, a methanolate or an ethanolate of lithium, sodium or potassium or a mixture of said bases.

Claim 11 (Previously Presented): The process of claim 10, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 bar.

Claim 12 (Cancelled).

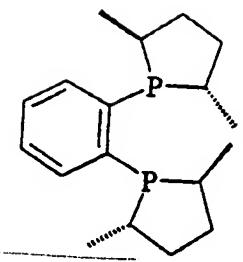
Claim 13 (Previously Presented): The process of claim 1, wherein the transition metal is Ru or Rh.

Claim 14 (Previously Presented): The process of claim 1, wherein the transition metal complex of the chiral bidentate phosphine ligand comprises at least one further stabilizing ligand that is selected from the group consisting of alkene and arene.

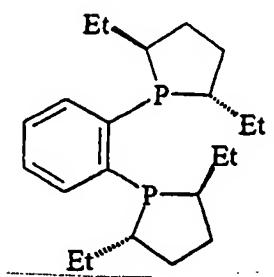
Claim 15 (Previously Presented): The process of claim 14, wherein the transition metal complex of the chiral bidentate phosphine ligand comprises at least one further stabilizing ligand that is selected from the group consisting of 1,5-cyclooctadiene and p-cymene.

Claim 16 (Previously Presented): The process of claim 1, wherein the counterion of the transition metal complex of the chiral bidentate phosphine ligand is selected from the group consisting of Cl^- , BF_4^- , AsF_6^- , SbF_6^- and triflate.

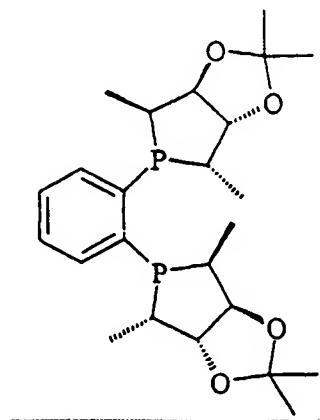
Claim 17 (Previously Presented): The process of claim 1, wherein the catalyst is prepared by mixing a transition metal complex of the formula $[\text{Rh}(\text{cod})_2]^+\text{BF}_4^-$ with a chiral bidentate phosphine selected from the group consisting of (S,S)-Me-DuPhos of formula:



(S,S)-Et-DuPhos of formula:



and (S,S,S,S)-Me-KetalPhos of formula:



Claim 18 (Previously Presented): The process of claim 1, wherein the base is a hydroxide, a methanolate or an ethanolate of lithium, sodium or potassium or a mixture of said bases.

Claim 19 (Previously Presented): The process of claim 11, wherein the hydrogen pressure during the reaction is in the range of 10 to 30 bar.

Claim 20 (Previously Presented): The process of claim 1, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 bar.

Claim 21 (Previously Presented): The process of claim 20, wherein the hydrogen pressure during the reaction is in the range of 10 to 30 bar.

Claim 22 (Previously Presented): The process of claim 1, wherein X in the compound of formula II and the chiral compound of formula I is S, and R is hydrogen, C₁₋₄-alkyl, C₃₋₈-cycloalkyl, aryl or aralkyl.

Claim 23 (Original): The process according to claim 1, wherein the asymmetric hydrogenation is carried out in a polar solvent, and at a temperature of 20 to 80 °C.